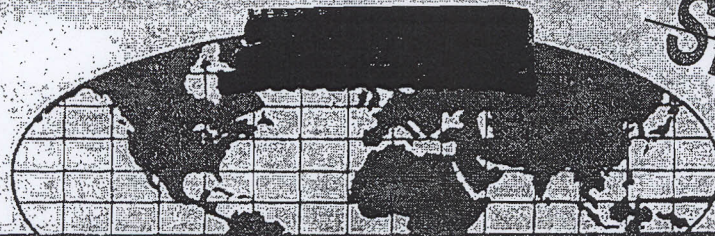


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NORTH AMERICAN AIR DEFENSE COMMAND

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WEEKLY INTELLIGENCE REVIEW (U)

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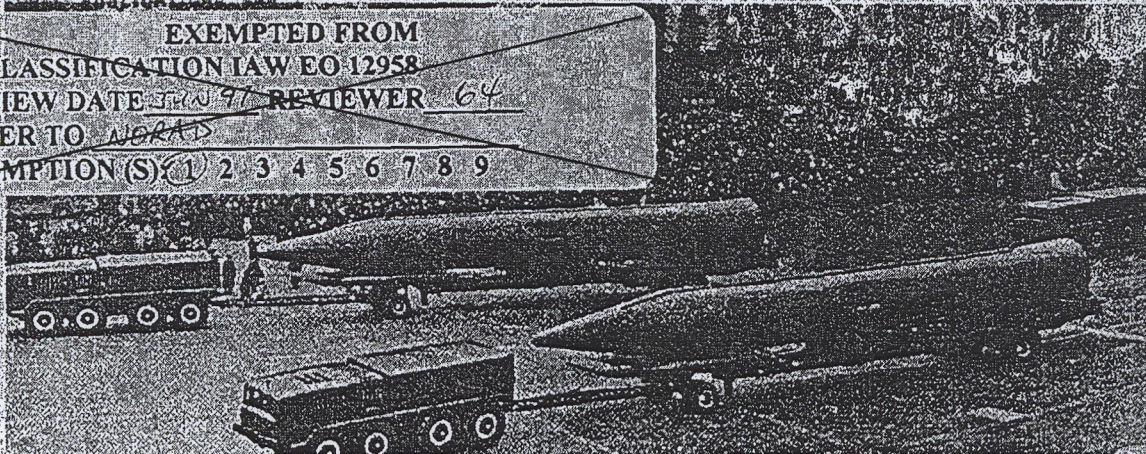
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Weekly
Intelligence
Review

Issue No. 49/64, 4 December 1964

The WIR in Brief

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Space

MARS PROBE LAUNCHED, MAY BE FOLLOWED BY OTHERS

Launched 1 hour too early for minimum-energy trajectory, probably to allow better observation of 4th-stage injection.

Portion identified
as non-responsive
to the appeal

COVER: Missiles in 7 November parade.
(From Red Star, OFFICIAL USE ONLY)
NOTE: Pages 26, 28, 29, 32, 33, 36, 37, 40,
41, and 42 of this issue are blank.

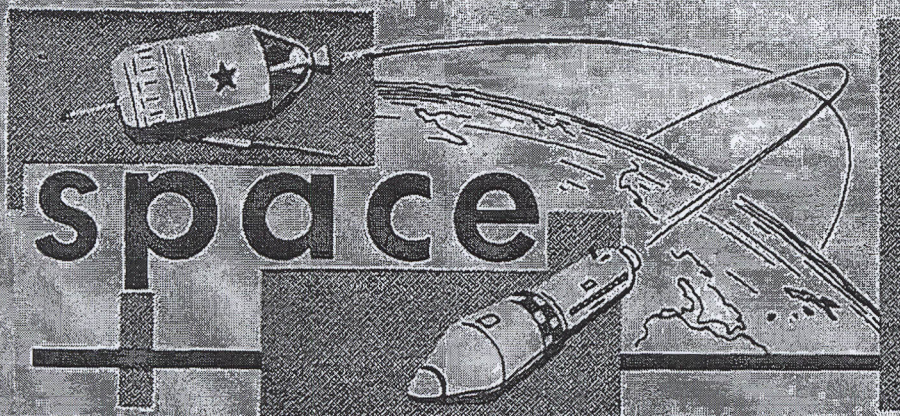
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significant
intelligence
on space
developments
and trends

Mars Probe Launched; May Be Followed By Others

Zond 2, the Soviets' first Mars probe of 1964, was launched from Tyuratam at about 1326Z, 30 November, and apparently was injected into transfer trajectory toward Mars about 90 minutes later.

An early TASS statement reported successful injection of the probe into a transfer trajectory "in the direction of Mars" but also reported that the power output is only about half as great as expected. Judging by the past, the Soviets probably have one or two standby vehicles which may be launched within the next few days. In late 1962, when Mars was last favorably positioned for a probe, the Soviets made 3 attempts -- 24 October, 1 November, and 4 November. (Only one of these -- Mars 1, launched 1 November -- achieved transfer trajectory, but the Soviets lost contact with it 4.5 months later.)

Zond 2 appears to have used the same propulsion as preceding Soviet interplanetary probes: launch by the SS-6 ICBM booster/sustainer, injection into parking orbit by the heavy Venik third stage, and injection into transfer trajectory toward Mars by the usual fourth-stage injection vehicle. The parking orbit, as usual, was low and circular. Its parameters were as follows, according to SPADATS:

Inclination to Equator	64.76 degrees
Period	88.21 minutes
Apogee	236.5 kilometers (127 n.m.)
Perigee	144.3 kilometers (78 n.m.)

Transmissions as follows have been intercepted from Zond 2:

50X1 and 3, E.O.13526

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50X1 and 3, E.O.13526

50X1, E.O.13526

The probe was launched one hour too early for a minimum-energy trajectory toward Mars. This was probably intentional. The minimum-energy launch would have required injection over Egypt; launch an hour later would have required injection over Turkey (coordinates about 3300N-3400E) at about 1500Z. Two Soviet space-event support ships of the type which have monitored previous interplanetary probe injection attempts were located in the eastern Mediterranean where they could have observed the injection procedure of an early launch for a maximum period of time; this would be desirable for the Soviets because most of the Soviets' failures have occurred during the injection phase.

The injection may have been observed visually by Western personnel [redacted] lights were observed in the sky for about 2 minutes, beginning at about 1458Z.

An indication of the possible imminence of this Soviet attempt came when two Soviet missile-range instrumentation ships left their home port of Petropavlovsk last week, apparently to take up positions on the Earth trace of a 65-degree Tyuratam launch.

The TASS Announcement. TASS announced, 24 hours after launch, that a vehicle designated Zond 2 had been launched from parking orbit into a trajectory close to that planned. The Soviets said that the vehicle was launched "in the direction of Mars" but they did not admit that its mission is to collect data on Mars; rather, they said that Zond 2's flight is concerned with development and test of a vehicle "to operate under the practical conditions of prolonged space flight. The Soviets probably would have preferred to introduce Zond 2 as an explorer of interplanetary space, as they did Zond 1, but they must have realized the futility of this subterfuge: the Western press correctly publicized Zond 1 as a Venus probe failure.

The Soviets have not yet announced the weight of Zond 2, but it is probably about as heavy as its predecessor space probes -- Mars 1 and Zond 1 -- which weighed about a ton. If so, it is about 4 times as heavy as the US's 500-pound Mariner 4 and probably carries much more instrumentation.

(SPADATS; US Navy; various sensors; TASS; NORAD)

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